

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in view of the present amendment and in light of the following discussion, is respectfully requested.

Claims 1-3, 6-8, and 10-14 are pending. By the present amendment, Claims 1, 3, 6, 8, and 10-14 are amended; and Claims 4 and 5 are canceled without prejudice or disclaimer. Support for the present amendment can be found in the originally filed specification, for example, at page 4, line 25 to page 5, line 2, at page 12, lines 7-24, and in Figure 3. Thus, it is respectfully submitted that no new matter is added.

In the outstanding Office Action, Claim 10 was rejected under 35 U.S.C. §112, second paragraph; Claims 1, 3-5, 8, 11, 13, and 14 were rejected under 35 U.S.C. §103(a) as unpatentable over Mochida et al. (Japanese Patent Publication No. 2001-296392, hereinafter “Mochida”) in view of Rodgers (U.S. Patent 3,309,450); Claims 2 and 12 were rejected under 35 U.S.C. §103(a) as unpatentable over Mochida and Rodgers, further in view of Hamby et al. (U.S. Patent 5,814,824, hereinafter “Hamby”); Claim 6 was rejected under 35 U.S.C. §103(a) as unpatentable over Mochida; and Claim 7 was rejected under 35 U.S.C. §103(a) as unpatentable over Mochida in view of Hamby.

In response to the rejection of Claim 10 under 35 U.S.C. §112, second paragraph, Claim 10 is amended to depend on Claim 1. In view of the amendment to Claim 10, it is believed that all pending claims are definite and no further rejection on that basis is anticipated. However, if the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work with the Examiner in a joint effort to derive mutually acceptable language.

In response to the outstanding rejections under 35 U.S.C. §103(a), these rejections are respectfully traversed as discussed below.

Claim 1 recites, *inter alia*, a fiber reinforced concrete cask, “wherein reinforcement fiber sheets...have a coefficient of thermal expansion less than a coefficient of thermal expansion of the concrete, and said support frame is sewn together into a cylindrical bag shape.” Thus, the claimed fiber reinforced concrete cask has a support frame sewn together into a cylindrical bag shape, and a concrete cask is formed by injecting concrete into the support frame and solidifying within the support frame. Therefore, as described in the originally filed specification, for example, at page 5, lines 4-10, the use of carbon fibers sewn into a cylindrical bag shape surrounding the concrete and having lower a coefficient of thermal expansion than the concrete allows the carbon fibers to exert a compression force upon the concrete in response to rising thermal temperatures from heat generated inside the cask. As the concrete is weak with respect to tensile forces and strong with respect to compression forces, the reinforcement fiber sheets dramatically improve the strength of the concrete. Thus, a fiber reinforced concrete cask with an improved strength is provided.

Mochida describes a radioactive body storage container with a liner 13 covering its periphery.¹ Such a liner 13 covers the periphery of the container by being wound around the container after a concrete screen 12 is formed.²

Rodgers describes a method of laminating reinforced plastics including introducing liquid resin into layers 14 of reinforcing fibrous material over a large surface area thereof.³

The outstanding Office Action, at page 3, concedes that Mochida does not disclose or suggest a fiber reinforced concrete cask formed by injecting concrete. Instead, the outstanding Office Action takes the position that Rodgers teaches injecting a reinforcing fibrous material.

Additionally, the outstanding Office Action, at page 3, concedes that “the combined invention of Rodgers and Mochida et al. differ from the claimed invention by not teaching

¹ See Mochida, at paragraph [0014].

² See Mochida, at paragraphs [0013] to [0014].

³ See Rodgers, at column 2, lines 15-34.

said reinforcement fiber sheets have a coefficient of thermal expansion equivalent to or less than a coefficient of thermal expansion of the concrete.” However, the outstanding Office Action takes the position that “it would be obvious to one of ordinary skill in the art to have a coefficient of thermal expansion equivalent to or less than a coefficient of thermal expansion of the concrete because this would enable the thermal expansion of concrete, bettering the resistance to cracks.”

However, neither Mochida nor Rodgers disclose or suggest that, by forming a concrete cask by injecting concrete into and solidifying concrete within a support frame which is sewn together into a cylindrical bag support frame using reinforced fiber sheets that have a thermal expansion coefficient less than that of concrete, such carbon fibers contract in response to rising temperatures from heat generated inside the cask to exert compression force upon the concrete, which is weak with respect to tensile force, but strong with respect to compression forces, thereby making it possible to dramatically improve the strength of the concrete. Thus, it is only through impermissible hindsight that a person of ordinary skill in the art would utilize reinforcement fiber sheets having a coefficient of thermal expansion less than the coefficient of thermal expansion of the concrete.

Additionally, the outstanding Office Action states that Mochida and Rodgers “further differ from the claimed invention by not disclosing said support frame is sewn together in a cylindrical bag shape.” Instead, the outstanding Office Action takes the position that it would be obvious to one of ordinary skill in the art to sew the support frame together. However, the record does not provide any evidence that it would be obvious to one of ordinary skill in the art to sew reinforcement fiber sheets together into a cylindrical bag shape to support concrete. As stated in M.P.E.P. §2144.03, “It is never appropriate to rely solely on ‘common knowledge’ in the art without evidentiary support in the record, as the principle evidence

upon which a rejection was based" (citing *In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001).

Therefore, it is respectfully submitted that the cited combination of Mochida in view of Rodgers does not disclose or suggest every feature recited in Claim 1. Thus, it is respectfully requested that the outstanding rejection of Claim 1, and all claims dependent thereon, as unpatentable over Mochida in view of Rodgers be withdrawn.

Claim 11 recites, *inter alia*, a method of fabricating a concrete cask, including "forming a support for injection of concrete, using reinforcement fiber sheets having a coefficient of thermal expansion less than a coefficient of thermal expansion of the concrete." As discussed above, it is respectfully submitted that the combination of Mochida in view of Rodgers does not disclose or suggest reinforcement fiber sheets having a coefficient of thermal expansion less than a coefficient of thermal expansion of concrete. Therefore, it is respectfully requested that the outstanding rejection of Claim 13, and all claims dependent thereon, as unpatentable over Mochida in view of Rodgers be withdrawn.

Additionally, regarding Claim 13, the outstanding Office Action takes the position that the concrete described in Mochida could replace the resin described in Rodgers. However, even assuming this is a proper combination, it is respectfully submitted that such a combination would still not disclose or suggest that a support frame is first filled with a fluid that will maintain a shape of the support frame, and then the concrete is injected from a bottom of said support frame to replace said fluid. Therefore, in addition to the reasons discussed above, it is respectfully submitted that Mochida in view of Rodgers does not disclose or suggest all the features recited in amended Claim 13. Thus, it is respectfully requested that the outstanding rejection of Claim 13 as unpatentable over Mochida in view of Rodgers be withdrawn.

With regard to the rejection of Claims 2 and 12 as unpatentable over Mochida and Rodgers in view of Hamby, it is noted that Claims 2 and 12 depend on Claims 1 and 11, respectively, and thus are believed to be patentable for at least the reasons discussed above. Further, it is respectfully submitted that Hamby does not cure any of the above-noted deficiencies of Mochida in view of Rodgers. Accordingly, it is respectfully submitted that Claims 2 and 12 are patentable over Mochida and Rodgers, and further in view of Hamby.

Claim 6 recites, *inter alia*, a support frame for forming a concrete cask, including “reinforcement fiber sheets having a coefficient of thermal expansion that is less than a coefficient of thermal expansion of concrete used to form the concrete cask.” As discussed above, Mochida does not disclose or suggest such reinforcement fiber sheets. Therefore, it is respectfully requested that the outstanding rejection of Claim 6, as unpatentable over Mochida be withdrawn.

With regard to the rejection of Claim 7 as unpatentable over Mochida in view of Hamby, it is noted that Claim 7 is dependent on Claim 6, and thus is believed to be patentable for at least the reasons discussed above. Further, it is respectfully submitted that Hamby does not cure any of the above-noted deficiencies of Mochida. Accordingly, it is respectfully submitted that Claim 7 is patentable over Mochida in view of Hamby.

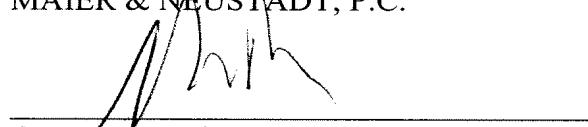
With regard to the rejection of Claim 8 as unpatentable over Hamby in view of Rodgers, it is noted that Claim 8 is dependent on Claim 6, and thus is believed to be patentable for at least the reasons discussed above. Further, it is respectfully submitted that Rodgers does not cure any of the above-noted deficiencies of Mochida. Accordingly, it is respectfully submitted that Claim 8 is patentable over Mochida in view of Rodgers.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. A Notice of Allowance is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicant's undersigned representative at the below-listed telephone number.

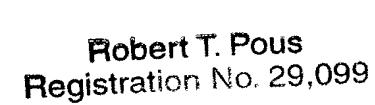
Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Attorney of Record
Registration No. 25,599

Kevin M. McKinley
Registration No. 43,794



Robert T. Pous
Registration No. 29,099

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)
CBH/rac